

Work Order ID 84934

May-29-12 3:00:30 PM

84934

Page 1

Item ID: D209-669-043

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Item Name: Replacement Skidtube

Stop ***NS2***

Start Date: 29/05/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 16/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/05/29 Tooling:

Date:

Run Start ***NR1***

QC:

Date: 12/05/29 SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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D2906	Rev B
-------	-------

100	0.00
-----	------

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D209-669 bluefile & type labels per PPP D205-669-043 Chg 002

003 per ECD 12-599 L

N/A

110

0.00

110

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

- Inspect mat'l D2500-1-190 for damage

-Drill pilot holes using drill jig DT8149, DT8711-2 & DT8711-3 (Do not use cutting fluid)

-Open holes to 0.500" as per Dwg D2906 without cutting fluid

-Deburr and blew out all chips from

-Acid etch and Alodine tube per QSI 005 4.1

> CF 12-6-12

> SON 12-06-12

W/G 12-6-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

QC3- Inspect Part Finish

0.00

120

QC

Memo

0.00

Quality Control

① 0 DE 12/06/13

130

0.00

130

Skidtubes

Skidtubes

Memo

0.00

Skidtubes

-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting
Pick:

Qty Part Number Description Batch

A/R Sikaflex-291 12/409

Sikaflex expire date: 13-4-12

Start Time: 1:39 Date: 12/06/13

Fin Time: 1:30 Date: 12/07/08 05

pick:

Qty	P/N	description	B/N
1	D2926-3	Web	34950

DE 12/06/13

W/O:		WORK ORDER CHANGES					
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1

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	BENDING MACHINE - CROSSTUBES	0.00							
140									
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	1-Bend as per program COB43FWD & COBRAFT on CNC Bender and Folio FT								
	2-Cut tubes as per Dwg. D2906								
150	Skidtubes	0.00							
150									
Skidtubes	Memo	0.00							
Skidtubes	-Deburr ends and remove marks from bending								
	- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimation.								
160	QC5- Inspect part completeness to step on W/O	0.00							
160									
QC	Memo	0.00							
Quality Control									

De 12/06/14

→ CF 12-6-15

CF 12-7-4

JB 12/07/05

1 0 BE 12/07/05

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	Large Fab	0.00							
170									
Skidtubes	Memo	0.00							
Skidtubes	-Drill holes for wearplates using DT8217 Open holes to 19/64", adjust stopper not to hit web. Deburr								
	-Drill pilot holes for aft & fwd cap using DT8215 open holes to #6" Deburr								
	-Drill pilot holes for Tow ring using DT8091-3 , open to .640" and Deburr								
190	QC5- Inspect part completeness to step on W/O	0.00							
190									
QC	Memo	0.00							
Quality Control									

DP 12-7-5

5/17/10/5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

Pressure Wash per QSI005 4.3

0.00

200

HandFinish

Memo

0.00

Hand Finishing

1 7/6 12-76

210

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

210

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

9:30
320 °F
10:00

IX

MA
12/07/06

220

QC3- Inspect Part Finish

0.00

220

QC

Memo

0.00

Quality Control

IX d ML 12/07/06

W121841

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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1

Cust Item ID:

Required Date: 16/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							
230	HandFinishing								
HandFinish	Memo	0.00							
Hand Finishing	1-Install inserts & wearplates as per Dwg. D2906. Use a drop of Sikaflex on insert holes before installing wearplates								
	A/R Sikaflex-291 11/11/13 0								
	Sikaflex expire date: 14/03								
	2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2906								
	3-Inspect for foreign object per QSI 024								
	4-Install D2855 Fwd & Aft Cap as per Dwg D2906 and seal Fwd & Aft Cap with Sikaflex. Clean excess adhesive								
	A/R Sikaflex-291 11/11/13 0								
	Sikaflex expire date: 14/03								
	5-Wing Walk as per Dwg D2906 and QSI 005 4.4								
	Batch: 11122320								

1 x 6 Ill n107109

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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Setup Start

NS1

Revision ID:

Item Name: Replacement Skidtube

Stop

NS2

Start Date: 29/05/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 16/07/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

240

QC5- Inspect part completeness to step on W/O

0.00

240

QC

Memo

0.00

6.12.11.10

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

250

0.00

250

Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD209-669-043

Location:

PPP Rev:

PPP 84888

12/7/12

260

QC21- Final Inspection - Work Order Release

0.00

260

QC

Memo

0.00

Quality Control

12/7/18

ME

12-07-27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

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Work Order ID: 84934

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Parent Item: D209-669-043

D209-669-043

Parent Item Name: Replacement Skidtube

Start Date: 29/05/2012

Required Date: 16/07/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: new IPP 08.02.13 LL, verified by: DD
IPP Rev:B remove DT # in seq140 DD 10.03.10 Verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1 *D4202-1* Spacer		Manufactured	No				Each	81.0000		19			
									**	19		CF 12-7-4	
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG				5					
					77727			5					
				LG002				76					
					78806			6					
					79810			70					
D2500-1-190 *D2500-1-190* Ext'n -1' Beam Tube 4"		Manufactured	No			110	Each	91.0000	1	1			
									**			CF 12610	
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				HALL				91					
					74777			14					
					80061			77					
D2926-3 *D2926-3* Web		Manufactured	No			110	Each	0.0000	1	1			
D2855 *D2855* Cap		Manufactured	No			230	Each	21.0000	2	2			
									**			all w/ 07/05	
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				FP002				21					
					65519			2					
					73347			16					
					75074			3					

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Work Order ID: 84934

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Parent Item: D209-669-043

D209-669-043

Parent Item Name: Replacement Skidtube

Start Date: 29/05/2012

Required Date: 16/07/2012

Start Qty: 1.00

Required Qty: 1.00

AN3-5A

Purchased

No

230

Each

1,090.000

4

4

AN3-5A

Bolt

**

yl 12/07/09

Location

Loc Qty

Loc Code

ST350

1090

115371

46

117423

124

118626

31

119355

200

120187

500

121185

189

yd

AN960JD10L

NAS1149D0332J

Purchased

No

230

Each

0.0000

4

4

*AN960.ID10I * *

Washer

11121011

**

(x4) yl 12/07/09

ALS7-1032-130

Purchased

No

230

Each

2,136.000

44

44

AI S7-1032-130 y ALS4-1032-130 / 11121269

Insert

**

(x44) yl 12/07/09

Location

Loc Qty

Loc Code

ST280

51

117717

27

118966

22

119775

2

ST282

2085

119530

73

120181

12

121444

2000

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Parent Item: D209-669-043

D209-669-043

Parent Item Name: Replacement Skidtube

Start Date: 29/05/2012

Required Date: 16/07/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C4A	Purchased	No	230	Each	1,458.000	44	44
AN3C4A						**	yl 12/07/09
BOLT							

Location

Loc Qty

Loc Code

ST350	1458	M1122151	x44
120187	57		
120521	28		
120769	38		
121205	1000		
121556	335		

AN960C10L	NAS1149C0332	Purchased	No
	R		

230	Each	0.0000	44	44
-----	------	--------	----	----

***AN960C10I *** 4

washer

D2594-3

Manufactured No

230	Each	2,418.000	14	14
-----	------	-----------	----	----

D2594-3

O-Ring, 205 Skidtube

(x44) yl 12/07/09

** yl 12/07/09

Location

Loc Qty

Loc Code

FP001	2418		
65518	41		
79496	984		
79573	50		
79755	1343		x14

W/O:		WORK ORDER CHANGES					
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D209-669-043

Parent Item Name: Replacement Skidtube

Start Date: 29/05/2012

Required Date: 16/07/2012

Start Qty: 1.00

Required Qty: 1.00

D2594-1

Manufactured No

230

Each

311.0000

14

14

D2594-1

Plug, 205 Skidtube

**

12/07/09

Location

Loc Qty

Loc Code

FP001

98

73401

30

74442

18

79495

50

FP-A

213

73401

0

78590

213

x14

D3564-9

Manufactured No

230

Each

22.0000

1

1

D3564-9

Wearshoe

**

12/07/09

Location

Loc Qty

Loc Code

FG

4

76950

4

FP001

18

67590

4

69943

1

82255

13

1384870

x1

D3564-11

Manufactured No

230

Each

8.0000

1

1

D3564-11

Wearshoe

**

12/07/09

Location

Loc Qty

Loc Code

FG

4

77056

4

FP001

4

80341

4

1383910

x1

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Shop Packet Print

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D209-669-043

Start Date: 29/05/2012

Required Date: 16/07/2012

Start Qty: 1.00

Required Qty: 1.00

D3564-5	Manufactured	No	230	Each	13.0000	1	1
D3564-5							
Wearshoe							
					**		all n/02/09

Location	Loc Qty	Loc Code	
FG	2	1385475	x1
34806	2		
FP001	11		
77609	3		
82254	8		

D3566-1	Manufactured	No	230	Each	31.0000	2	2
D3566-1							
Gasket							
					**		all n/02/09

Location	Loc Qty	Loc Code	
FP	-22	1381879	x2
81619	10		
FP002	53		
68924	2		
80919	3		
83898	16		

D3566-5	Manufactured	No	230	Each	21.0000	1	1
D3566-5							
Gasket							
					**		all n/07/09

Location	Loc Qty	Loc Code	
FP	12		
82275	12		x1
FP002	9		
80374	3		
82274	6		

W/O:		WORK ORDER CHANGES					
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QTY -041	QTY -043	Part Number	Description
X		D2906-041	SKIDTUBE ASSEMBLY
	X	D2906-043	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
22	19	D2579	CROSS BOLT SPACER
12	14	D2594-1	PLUG
12	14	D2594-3	O-RING
2	2	D2855	AFT CAP
1		D2926-1	WEB
	1	D2926-3	WEB
1	1	D3564-9	WEARSHOE (REPLACES D2577-1)
1	1	D3564-11	WEARSHOE (REPLACES D2577-3)
1	1	D3564-5	WEARSHOE (REPLACES D2577-5)
1		D3564-15	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1		D3566-15	GASKET
50	44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130	INSERT
50	44	AN3C4A	BOLT
4	4	AN3-5A	BOLT
50	44	AN960C10L	WASHER
4	4	AN960JD10L	WASHER

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 190 INCHES.
- 3) INSERT D2926-1/-3 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 6) USE DART DRILL TEMPLATE DT2906-041T1 (D2906-041) OR DT2906-043T1 (D2906-043) TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION C-C AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/291.
- 7) WELDING TO BE DONE PER DART QSI 004.
- 8) FINISH:
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2926-1/-3 WEB. POWDER COAT ASSEMBLY WHITE (REF 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 9) INSERT D2594-1 PLUG CW D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (12 PLACES).
- 10) ALL DIMENSIONS ARE IN INCHES.

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B	UPDATE DRAWING FORMAT: RE-ORGANIZE; ADD STAINLESS STEEL WEARPLATES AND GASKETS CHANGE WEARPLATE HARDWARE TO SS; PG 1: ADD NOTE 10; PG 2 C7: REMOVE AFT Ø0.640 HOLE FROM -041; PG 3 C3: CORRECTED -043 CAP P/N; PG 3 D7: 38 PLACES WAS 44 PLACES;	CB	07.08.21
A	NEW ISSUE	CP	04.06.22
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>q</i>		
DRAWN	<i>CB</i>		
CHECKED	<i>PH</i>		
MFG. APPR.	<i>PH</i>		
APPROVED	<i>PH</i>		
DE APPR.	<i>PH</i>		
DATE	07.08.21		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. B SHEET 1 OF 3	
DRAWING NO. D2906		SCALE	
TITLE AH-1 (209) SKIDTUBE ASSEMBLY		NTS	
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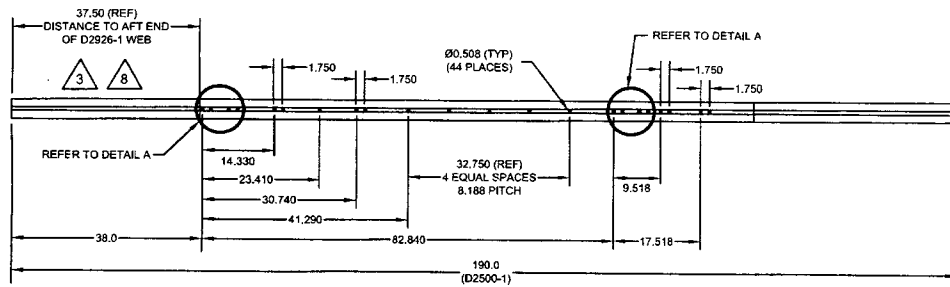
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

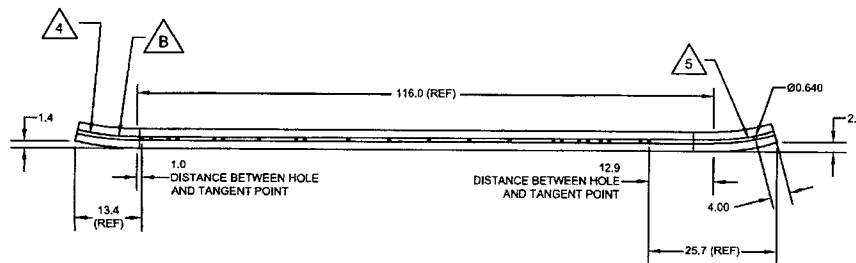
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

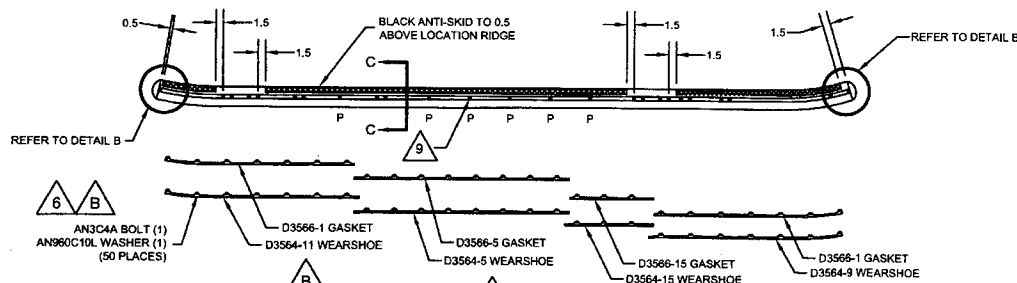
NOTE: Date & initial all entries



D2906-1 DRILLING DETAIL

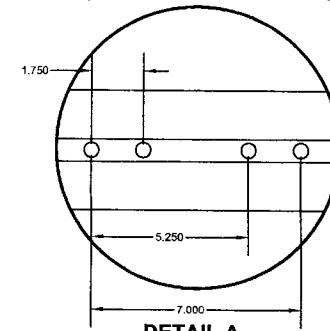


D2906-041 BENDING AND CUTTING DETAIL

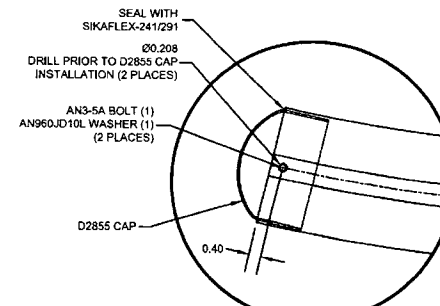


D2906-041 ASSEMBLY DETAIL

24934



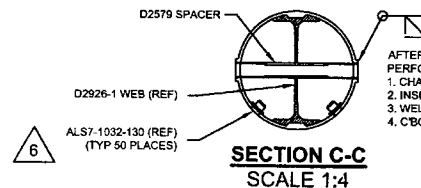
**DETAIL A
SCALE 1:4**



**DETAIL B
SCALE 1:4**

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**SECTION C-C
SCALE 1:4**

AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (22 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C-BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

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MFG. APPR.	PH		SHEET 2 OF 3
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DE APPR.	PH	AH-1 (209) SKIDTUBE ASSEMBLY	1:24
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries